

and other data, perhaps including store-and-forward messaging and real-time text messaging.

The main lesson that can be learned from LO-90 is that for a system like this to be successful, multi-platform software support is crucial. Most amateur radio operators are not Linux enthusiasts and are not interested in booting to a different operating system to operate through a satellite. Any future digital voice satellite must have easy-to-use ground station software for Windows, MacOS, and Linux to be fully successful.

Notes

¹. "LilacSat-1 CubeSat deployed from ISS." AMSAT-UK. amsat-uk.org/2017/05/19/lilacsat-1-cubesat-iss/. Accessed October 14, 2018.

². "LilacSat-1 Radio Info." LilacSat. lilacsat.hit.edu.cn/wp/?page_id=594. Accessed October 14, 2018.

³. "Decay." DK3WN Satblog. www.dk3wn.info/p/?page_id=43437. Accessed February 5, 2019.

⁴. "Codec 2" Rowetel. www.rowetel.com/?page_id=452. Accessed October 14, 2018.

⁵. Links to the various software and articles about the technical characteristics of the LO-90 downlink are available at lilacsat.hit.edu.cn/wp/?page_id=594. However, M6SIG's live image is no longer available at that link. Please email the author for a link if you are interested in trying the live image.

⁶. "Low Latency Decoder for LilacSat-1." desteve.net/2017/05/low-latency-decoder-for-lilacsat-1/. Accessed October 14, 2018.

⁷. Taurus-1 Frequency Coordination. The International Amateur Radio Union. www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=568 Accessed October 14, 2018.



AMSAT on the Queen Mary

**Patrick Stoddard, WD9EWK/
VA7EWK**
wd9ewk@amsat.org

In March 2016, I had the opportunity to work AO-7 from the Wireless Room on the RMS Queen Mary, W6RO, anchored at the Port of Long Beach in California. This was the last satellite activity from the W6RO station. After discussions during the summer and fall of 2018 about having more satellite activity from the Queen Mary, W6RO was heard once again on the satellites on December 15, 2018. In spite of the challenges in scheduling the event, and operating in an urban location full of RF, "AMSAT on the Queen Mary" was a success.

While I was in southern California for an event in August 2018, I asked Endaf Buckley, N6UTC — a Long Beach ham involved with the Associated Radio Amateurs of Long Beach (ARALB, the club that operates the W6RO station) — about the possibility of a satellite activity on the Queen Mary.

Endaf mentioned that the W6RO satellite station had been dismantled. I then suggested this activity could be done Field Day-style with portable equipment. Endaf took this suggestion to the ARALB's manager of the W6RO Wireless Room, David Akins, N6HHR, who then went to the management of the Queen Mary. The ship's management liked the idea, and the discussions focused on two points - when this would take place, and where on the ship we could conduct this activity. With holiday-

related activities on the ship in December, including the installation of a small ice rink near the wireless room, the satellite activity needed to take place somewhere else on the ship. Endaf and David scouted the ship, and they along with the ship's management agreed on using the Verandah Deck, near the ship's stern. This allowed for a view of the eastern sky and a large open area where we could work around the rest of the ship for any passes to the west. After getting some options for the date of this event, all of us agreed on a Saturday, December 15, 2018, for the event.

Endaf and I brought our equipment to the Queen Mary on December 15. Endaf brought his trusty Yaesu FT-60R and Elk log periodic, and I also brought my Elk with a few radios (Kenwood TH-D72 and TH-D74, along with two Yaesu FT-817NDs). After clearing the Queen Mary security around 9 am (1700 UTC), we boarded the ship and went to the Verandah Deck. A table and chairs were waiting for us. We started to set up the table, with AMSAT flyers and 3D-printed models of CubeSats. We also hung an AMSAT banner. We were ready for the first pass as W6RO, an AO-92 pass, a half-hour after we boarded the ship.

The AO-92 pass was a 37-degree pass for us, giving us a footprint covering much of the continental U.S. We logged 14 contacts in the span of 5 minutes on this pass, which was an excellent start for the day. About 30 minutes after this pass, an ISS pass covered the western U.S. We logged one contact on this pass, making 15 QSOs for the first hour or so of the event. As we were starting out on the radio, a member of the Queen Mary's management visited our table to confirm we had everything needed for our event.





[L-R] Patrick Stoddard, WD9EWK, Commodore Everette Hoard, Queen Mary; Endaf Buckley, N6UTC.



Endaf, N6UTC, working SO-50.



Patrick, WD9EWK, working AO-92.

The 11am-12pm hour (1900-2000 UTC) included a couple of passes: a western AO-92 pass, and a FalconSat-3 pass. Working around the ship to see the satellite for a few minutes, AO-92 brought us 5 QSOs, and two more QSOs through the digipeater on FalconSat-3. So far, so good. And at noon (2000 UTC), we had an AO-91 pass directly overhead. Despite some interference early in the pass, we made 12 QSOs with stations across much of the continental U.S. and Mexico.

Endaf, N6UTC, took to the radio for a SO-50 pass a little while after the AO-91 pass as W6RO. Working many stations in the western U.S., and as far east as Texas and Indiana, we logged eight more QSOs before 1 pm (2100 UTC).

Later in the afternoon, we had a few more opportunities to put W6RO on more satellites. Late afternoon AO-7 and FO-29 passes added six more QSOs, and the last pass of the day, an ISS pass just before 5 pm (0100 UTC), provided two more QSOs for the log. As the sun started setting in the western sky, we packed up our equipment and left the Queen Mary.

W6RO logged 50 satellite contacts on 9 different passes using 7 different satellites (AO-91, AO-92, and SO-50 in FM; AO-7 and FO-29 in SSB, ISS and FalconSat-3 in packet). Many people stopped by the table during the day, curious about what we were doing with radios and antennas on the Queen Mary. The Queen Mary's commodore even visited us in the afternoon. Endaf, N6UTC, live-streamed many of the passes worked as W6RO, and most of those videos are also available on my YouTube channel, youtube.com/va7ewk

W6RO has been on the Queen Mary for 40 years, and "AMSAT on the Queen Mary" could be the first of similar future satellite activities from the ship. Thanks to the Associated Radio Amateurs of Long Beach, and its W6RO Wireless Room Manager David Akins, N6HHR, for working with the Queen Mary management to make this event happen. We also had the assistance of Ron Frank, N3HI, an ARALB member who was with us for most of the day watching the activity.



Patrick, WD9EWK, and Endaf, N6UTC, in the W6RO Wireless Room of the Queen Mary.



From left, Wireless Room Manager, David Akins, N6HHR; Endaf, N6UTC (front); Patrick, WD9EWK; and Ron Frank, N3HI.



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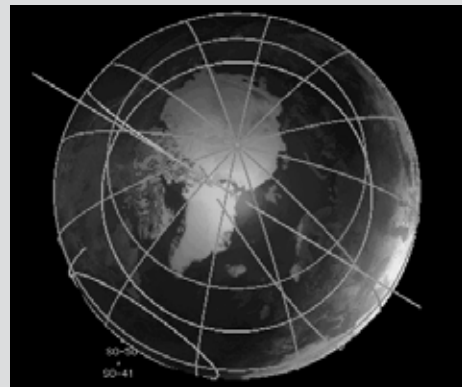
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